

Work Order ID 93148

November 15, 2012 7:26:02 AM

93148

PRELIMINARY ISSUE

Page 1

Item ID: D4129-041

Accept

N900040100

Setup Start

NS1

Revision ID: PRELIM

Item Name: Rod End Assembly

Stop

NS2

Start Date: 11/15/12

Start Qty: 2.00

2

Cust Item ID:

Required Date: 11/21/12

Req'd Qty: 2.00

2

Customer:

Reference:

Approvals:

Process Plan:

CL

Date:

12/11/15

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Work Order ID

Draw Nbr

Revision Nbr

D4129

PA10

100

0.00

100

Doosan

Doosan Lathe

DOOSAN LATHE

Memo

1- Turn as per Folio FB097

Rev:

Rev: PA10

3-Deburr per dwg

0.00

110

0.00

110

QC

Quality Control

QC2- Inspect parts off machine FAI/FAIB

Memo

0.00

DA 13 8-09

12/11/20

2

Ø

2

Ø

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process											
Supplier											
Training											
Unapproved											

FAULT CATEGORY				
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other

Work Order ID 93148

93148

Page 2

November 15, 2012 7:26:02 AM

Item ID: D4129-041
Revision ID: PRELIM
Item Name: Rod End Assembly

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 11/15/12 Start Qty: 2.00 *2*

Cust Item ID:

Required Date: 11/21/12 Req'd Qty: 2.00 *2*

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:

QC: Date: SPC (Y/N): Date:

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140 *140* QC Quality Control	QC8- Inspect parts - second check Memo 100% CHECK, CHECK ALL DIMENSIONS AND THREAD FIT	0.00 0.00							
150 *150* Purchasing Purchasing	PURCHASING Memo Issue P/O: 184184 LPI Per ASTM 1417 LEVEL 2 Certificate of conformaty is required	0.00 0.00							
160 *160* Packaging Packaging	Receive & Inspect for Damage & Mat'l Certs Memo Ensure certificate of conformity is attached	0.00 0.00							

2
inspect as per
DWG PA 10

12-11-22

42/11/22 (2)

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process											
Supplier											
Training											
Unapproved											

FAULT CATEGORY											
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge		<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other

Work Order ID 93148

November 15, 2012 7:26:02 AM

93148

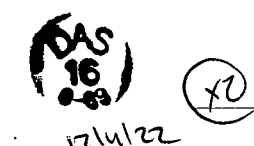
Page 3

Item ID: D4129-041 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: PRELIM Stop ***NS2***
 Item Name: Rod End Assembly
 Start Date: 11/15/12 Start Qty: 2.00 ***2*** Cust Item ID:
 Required Date: 11/21/12 Req'd Qty: 2.00 ***2*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
161		0.00							
161						2	0		FF 12-11-22
Small Fab	Memo	0.00							
Small Fab	SWAGE AS PER DWG								
170	QC5- Inspect part completeness to step on W/O	0.00							
170									
QC	Memo	0.00							
Quality Control									
180	Identify as per dwg & Stock Location: _____	0.00							
180									
Packaging	Memo	0.00							
Packaging									

-inspected to PA10
 Dwg.
 Bearings tight and
 appears to be correctly
 swaged/move smoothly
 12/14/22




NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process											
Supplier											
Training											
Unapproved											
FAULT CATEGORY											
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube </div> <div style="width: 30%;"> General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio </div> <div style="width: 30%;"> <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions </div> <div style="width: 30%;"> <input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other </div> </div>											

Work Order ID 93148***93148***

Page 4

November 15, 2012 7:26:02 AM

Item ID: D4129-041

Accept

N900040100Setup Start ***NS1***

Revision ID: PRELIM

Stop ***NS2***

Item Name: Rod End Assembly

Start Date: 11/15/12 Start Qty: 2.00

2

Cust Item ID:

Required Date: 11/21/12 Req'd Qty: 2.00

2

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool #

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

190

QC21- Final Inspection - Work Order Release

0.00

190

QC

Memo

0.00

Quality Control

POSITIVE RECALL

EFFECTIVE _____ AUTH _____

RELEASED _____ DATE _____

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process											
Supplier											
Training											
Unapproved											

FAULT CATEGORY				
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other	

Picklist Print

November 15, 2012 7:26:02 AM

Page 1

Work Order ID: 93148

Parent Item: D4129-041

Start Date: 11/15/12

Required Date: 11/21/12

Parent Item Name: Rod End Assembly

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP REV:A NEW ISSUE 12-02-29 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4596-1		Manufactured	No				Each	0.0000					
Spherical Bearing													
M174PH-H900R1.000		Purchased	No				f	126.8160					
17-4SS H900 ROUND BAR 1.00													

B93149² PAZ

0.44

Location

Loc Qty

Loc Code

MAT030

126.816

117445

1.23

120767

11.75

121280

20.05

121918

9.453

122577

48.333

123446

36

DAS
13
2-89

12/1/20

.5 AF

NCR: Yes / No

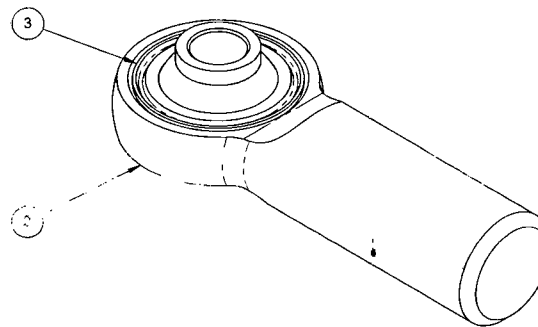
WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											
FAULT CATEGORY											
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other		

ITEM	QTY. -041	PART NUMBER	DESCRIPTION
1	X	D4129-041	ROD END ASSEMBLY
2	1	D4129-1	ROD END
3	1	D4596-1	SPHERICAL BEARING



D4129-041 ROD END ASSEMBLY

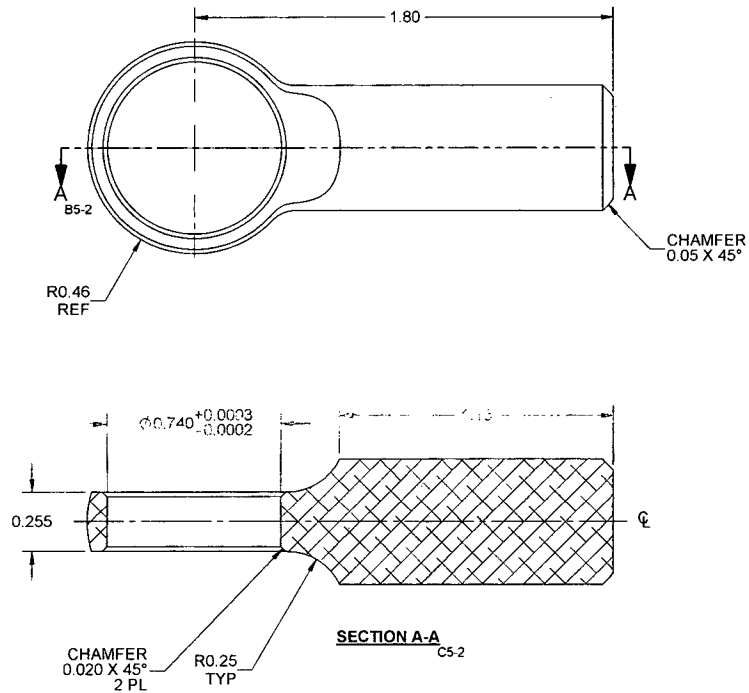
PRELIMINARY ISSUE

12.01.24

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER DART QSI 044 6.1
- 7) WEIGHT: 0.14 lbs
- 8) SWAGE D4596-1 BEARING INTO D4129-1 ROD END PER DART QSI 002 4.3
USING HIGH PERFORMANCE VEHICLE ENGINEERING SWAGING TOOL SWAG-4HM

PA10	NEW ISSUE	BY	12.01.24
REV.	DESCRIPTION		DATE
DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. PA10
MFG. APPR.		D4129	SHEET 1 OF 2
APPROVED		TITLE	SCALE
DE APPR.		ROD END BEARING	NTS
DATE	12.01.24	<small>COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small>	



D4129-1 ROD END

NOTES:

- 1) MATERIAL: 17-4 PH STAINLESS STEEL BAR, H900 CONDITION
PER AMS 5604/5643
DART SPEC M17-4-B
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 0.10 lbs
- 8) LIQUID PENETRANT INSPECT PER QSI 038 4.1

DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. PA10
MFG. APPR.		D4129	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		ROD END BEARING	NTS
DATE	12.01.24	<small>COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small>	

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: _____ Date: _____

QA Closed: _____ Date: _____

Work Order: _____ Part No. _____ NCR No. _____				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Water Jet <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> </div> <div> Engineering <input type="checkbox"/> Quality <input type="checkbox"/> Other <input type="checkbox"/> </div> </div>					
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data											
Equip/Tooling											
Operator											
Material											
Setup											
Other											
Process											
Supplier											
Training											
Unapproved											

FAULT CATEGORY			
Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other

Receiving Report

Date: 12/4/5

Batch No: 11/21/280

Supplier: McTAVY cattle

Dart P/O: 16481

Packing Slip: Yes ☒ No ☐
 Invoice: Yes ☐ No ☒
 Receipt: Cash ☐ Cr ☒

Release Note Attached: Yes ☒ No ☐ N/A ☐
 Waybill Attached: Yes ☒ No ☐ N/A ☐
 Shipment Complete: Yes ☒ No ☐ N/A ☐
 QC6 Inspection OK 12/04/11 N/A ☒
 Work Order N/A ☒

Discrepancies

Part Number	Description	Quantity Ordered	Quantity Received	Quantity Returned	Quantity Short	Comments

Initials of receiver (if shipment OK) Level 12

Production/Admin: 12/4/5
 Date
 Received/Costing
 Initial

Location

All amounts are calculated in domestic currency.

All Vendors PO ID PO16481 Receipt Dates from 4/5/2012 to 4/5/2012 All Line Item Types
All Item ID/GL/WOs All Rec. Employees All Currencies
Grouped by Vendor ID

[illegible]

**Castle Metals®****COPIE**

A. M. Castle & Co.

BORDEREAU DE MARCHANDISES

Page 1 of 2

No de Formulaire d'Emballage / Shipment No:1249578

Expédié de / Ship From:		Vendu à / Sold To:		Expédié à / Ship To:		Livré à / Deliver To:	
A. M. Castle & Co. (Canada) Inc. MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		METCOR INC. 560 BOUL. ARTHUR-SAUVE SAINT-EUSTACHE, QC J7R 5A8 CAN		METCOR INC. 560 BOUL. ARTHUR-SAUVE SAINT-EUSTACHE, QC J7R 5A8 CA	
Date d'expédition / Date Shipped	F.O.B.	Modalités de transport / Freight Terms		Transporteur / Carrier		No du Bon de connaissance / BOL No	
28-MAR-2012	ORIGIN	Prepaid		LOCAL_FLEET		1249578-3	

Détails d'expédition / Shipment Details	Destination finale / Final Destination Branch - MON
--	--

N° de commande / Order No	N° de ligne Line No	N° d'article / Item No	Description	
2081810	1	14968	1.0000.RD.17CR-4NI.STAINLESS.CF.SOL TR.COND A.132.0000-156.0000 SPECIFICATIONS: AMS 5643 EMAIL ALL PAPERWORK TO: clavoie@dartaero.com	
N° de bon de commande / Purchase Order No	Nbre de pièces / Part Number		Qté commandée / Ordered Qty	Qté Facturée / Invoice Qty
16481			60.00 FT	62.5000 FT

Détails / Details							
N° de livraison / Delivery No :	Usine / Mill	No de coulée / Heat Number	Code méc / Mech Id	Pièce s / PCS	Largeur (Pouce) / Width (IN)	Longueur (Pouce) / Length (IN)	Qté expédiée / Shipped Qty(LBS)
117474894	OUTOKUMPU STAINLESS INC.	G17803		5		150	166.88

Ces marchandises/technologies sont sujettes aux règlements de l'Export Administration et du département d'état des États-Unis. Si elles ont été/sont exportées, elles doivent se conformer à ces règlements. Toute modification du contrat de transport contraire aux lois des États-Unis est interdite.

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

Nous certifions par la présente que le matériel couvert par cette certification est conforme aux spécifications susmentionnées et aux exigences applicables pour le matériel, y compris toute spécification faisant partie de la description. Les rapports d'essai sont archivés pour fins de consultation. Toute requête concernant du matériel défectueux sera rejetée à moins qu'elle ne soit faite par écrit à A. M. Castle & Co. dans les 60 jours suivant la livraison. Le matériel coupé sur mesure ou coupé par le client ne peut être retourné pour crédit.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion contrary to US law prohibited.

Date Printed: 28-MAR-2012 04:57:07 PM



Certificate of Test

HEAT G17803

ORDER 621825/ 09 BOL 0214314 *

CERTIFICATION * 10/14/11

SHIP TO:

A. M. CASTLE & CO.
26800 MILES ROAD
216-292-7600
BEDFORD HEIGHTS

441460000

YOUR ORDER & DATE

104305

10/14/11 CUST# 0254001 CUST TAG#14968

ITEM DESCRIPTION

GRADE 17-4 Ship Condition CONDA
Size 17-4 RND CFA CONDA 1.0000 x 144.000 RL
Country of Melt: UNITED STATES Country of Mfg.: UNITED STATES
NAFTA Country of Origin is Country of Melt

No weld repair
Free of mercury contamination, Free of radiation contamination
No WREE relevant substances; Meets EU electrical ROHS

Total Bundles 2 Total Weight 4268

WO 2024578 Bundles: 1G, 1I

SPECIFICATIONS

THE PRODUCTS LISTED ON THIS MILL TEST REPORT SATISFY PREFERENCE CRITERION B
AS DEFINED IN ARTICLE 401 OF THE NORTH AMERICAN FREE TRADE AGREEMENT.

AMS 2303F AMS 5643R
UNS S17400, AISI 630 ASME SA564 E10 A11a
ASTM A484 11 ASTM A564 10 Type 630
DFARS 252.225.7014 6/05 Sol Ann 1900F/1Hr/Rapid Cool
AM Castle 3174-03 R25
H900 Capability sample aged @ 900F/1hr/AC then tensile and HRC tested.

MECHANICAL & OTHER TESTS

Hardness as shipped	336 HB	Hardness as tested	409 HB
Hardness as shipped	036 HRC	Hardness as tested	(44 HRC)
Grain size	6.0	Tensile strength, KSI (MPa)	205.0 (1413)
Micro	OK	0.2% Yield Strength, KSI (MPa)	180.6 (1245)
Intergranular corrosion		Elongation % in 4D	13.5
Macro	OK	Reduction of area %	44.3
Ferrite	.0		

CHEMICAL COMPOSITION

Carbon (C)	.028	Manganese (Mn)	.860
Phosphorus (P)	.020	Sulphur (S)	.028
Silicon (Si)	.300	Chromium (Cr)	15.330
Nickel (Ni)	4.210	Cobalt (Co)	.060
Copper (Cu)	3.740	Moly (Mo)	.350
Nitrogen (N)	.030	Columbium (Cb)	.240
Titanium (Ti)	.010	Aluminum (Al)	.010
Tin (Sn)	.006	Boron (B)	.002
Tantalum (Ta)	.010	Vanadium (V)	.090
Columbium/			
Tantalum (Cb+Ta)	.250		
Iron (Fe)	Balance	Severity	.000
Frequency	.000		
Melt Practice	RAF		
Refining Practice	AOD		
De-long Ferrite			

Knowingly & willfully falsifying or concealing a material act on this form,
or making false, fictitious or fraudulent statements or representations
herein could constitute a felony punishable under federal statutes.
We hereby certify that the test results shown in this report are correct and
accurate as contained in the records of the company and are in compliance
with the specifications, codes, and standards listed above.

M.F. Marcanio, Quality Manager

M.F. Marcanio

Q 17803	
14948	
18453	
104305	
10.13.11	
SUPPLIER <u>AutoKlimat</u>	
LCS _____	
COMMENT _____	
APPROVED <u>14</u>	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO16481**

Purchase Order Date 3/20/12

PO Print Date 3/20/12

Page Number 1 of 2

Order From :

VC-MET001

METAX CASTLE
A.M. CASTLE & CO. (CANADA) INC. - BOX B9204 PO BOX 9100
TORONTO, ON M4Y 3A5
CA

Contact Name

Vendor Phone

514 694 9575

Vendor Fax

514 695 3281

Vendor Account Nbr

Buyer

Requisition Nbr

Tax Resale Nbr

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

CAD

Destination-Collect

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA



Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	M174PH-H900R1.000	17-4SS H900 ROUND BAR 1.00	3/30/12 Yes	60.00	Yours ppd	\$9.7700	\$586.20
		Special Inst:	MATERIAL: 17-4 PH COND. H900 AS PER AMS 5643				
		NOTE:	PLEASE SHIP MATERIAL TO METCOR INC. 560 BOULV. ARTHUR SAUVE SAINT-EUSTACHE, QC J7R-5A8 450-473-1884				
2	M174PH-H900R1.375	17-4 SS H900 ROUND BAR 1.375	3/30/12 Yes	36.00	Yours ppd	\$16.4500	\$592.20

f REC 62.50

f 36.250

12/4/5

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

Change Nbr: 1

Change Date: 3/20/12



LIQUID PENETRANT TEST REPORT

P- 12686

CLIENT DAIT AERO SPACE DATE NOV. 22-12 PAGE 1 OF 1
ATTENTION ANDY ACUREN JOB NO. 108-12-0835 TIME AM ☒ PM ☐
ADDRESS 1270 ABELDEEN ST PO/WO No. ---
HAWKES BURY - ON. WORK LOCATION SAME
PROJECT FP I. ON CROSSTUBES, MACHINED PARTS ACCEPTANCE STD. ASTM 1417/01-038 REV./DATE 2005
ITEM(S) EXAMINED (6) (2)

JOB DESCRIPTION PROCEDURE NO. LT 1002 REV./DATE 2008 TECHNIQUE NO. LT 1002 REV./DATE 2008
PART NO. SEE RESULTS MATERIAL STAINLESS/ALUMINUM THICKNESS VARIOUS
SCOPE A DYE FLUORESCENT DYE PENETRANT EXAMINATION WAS
CARRIED OUT 100% EXTERNAL SURFACE

TEST DETAILS
METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N 16459 ☐ OUTPUT > 1000 μ W/cm² ☐ AMBIENT < 2 fc
PENETRANT 2 L02 MINIMUM DWELL TIME 450 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER LABINO
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N 129886 CAL DUE DATE NOV 24
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY 2012

TEST SURFACE
SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- (☐ METRIC ☐ IMPERIAL)

ITEM	COMMENTS	ACCEPT	REJECT
2	ROD END ASSEMBLY W.O. #93148	X	
1	CROSSTUBE - W.O. #92952	✓	
1	" " " - 92951	✓	
1	" " " - 92846	✓	
1	" " " - 92847	✓	
1	" " " - 92848	✓	
1	" " " -	X	

Per P310 8/12/12

REGROUND ONCE - ACCEPTED

REGROUND PIECE HAS INDICATIONS
FAIL

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE Andy Sheldon PRINT ASheldon SIGNATURE DTR # E-120735
TECHNICIAN (SIGNATURE): M. HE JONES 1ST TECHNICIAN 2ND TECHNICIAN
NAME (PRINT): CGSB LEVEL II SNT LEVEL --- CGSB LEVEL --- SNT LEVEL ---
CGSB REG. No. 6606 CGSB REG. No. ---
REPORT REVIEWED BY: NAME INITIALS